

REMARKS

Applicants have received and reviewed the Office Action dated February 1, 2010. By way of response, Applicants have amended claim 1 and present the following response to the rejection. No new matter has been added. Claims 1-31 are pending, but claim 9-31 are withdrawn from consideration.

Applicants submit that the amended claims are supported by the specification as filed. For example, the bake hardening values added to claim were found in claim 31. In addition, the amount of aluminum can be found in the specification as filed at Table 1 in composition E.

For the reasons presented below, Applicants respectfully submit that the amended claims are in condition for allowance, and notification to that effect is earnestly solicited.

Rejection of Claims Under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-8 and 20 were rejected under 35 U.S.C. § 103(a) over Yokoi et al., US 6,589,369. Applicants respectfully traverse this rejection.

The Office Action asserts that the claimed range for aluminum content overlaps a range disclosed in the Yokoi et al. reference. Amended claim 1 recites a range for aluminum content of between 11200ppm and 15000ppm. This range is outside the range disclosed by the Yokoi et al. reference. For reasons discussed below that are based on data presented in a Declaration Under 35 C.F.R. §1.132 that will be submitted within the next two weeks, the cited reference does not make obvious the presently claimed invention.

First, claim 1 has been amended to recite that the steel composition has bake hardening (BH2) that is greater than 40MPa in both longitudinal and transversal directions. The test data presented in the Declaration demonstrates that the presently claimed composition are characterized by such bake hardening. The cited reference neither discloses nor suggests that such bake hardening can be achieved at levels of aluminum content above 10,000 ppm. Further, one of skill in that art, at the time the present application was filed, would not have expected the claimed levels of bake hardening. Thus, the claimed invention is not rendered obvious by the cited reference.

Cold rolled steel test samples according to claim 1 were subjected to Bake Hardening tests according to the norm SEW094. BH2 values express the difference between the yield strength of a sample that has undergone controlled ageing and 2% prestrain, and the yield strength of said same sample having undergone a controlled baking step (details of all the various steps are set out in the norm SEW094).

The composition of the tested samples was (values in ppm) :

C	Mn	Si	P	S	Al	N	Ti	Cr	Ni	Cu	As	Sn	Nb	Mo	V	Sb
1872	16457	3469	724	63	12018	44	77	246	239	204	27	49	27	273	45	59

The levels of Cr, Ni, Cu, As, Sn, Mo and Sb are incidental impurities. The remainder of the samples was essentially Fe. This composition thus has ingredients that fall in the ranges in claim 1.

1. The samples had the following microstructure:

Ferrite : 80vol%

Bainite : 10vol%

Retained Austenite : 10vol%

Martensite : 0

Measurements of the microstructure phases have a margin error of at least 5 vol%. Thus, it is concluded that the samples correspond to the claimed microstructure.

The following tables show the Bake Hardening values BH2 obtained on the samples, in three separate tests, in transverse and in longitudinal directions:

	Transverse Direction		
	aged + 2% prestrain	aged + 2% prestrain + BH	BH2
Test 1	542	632	90
Test 2	543	630	87
Test 3	541	628	87
Average			88
Std. Dev.			1.7

		Longitudinal Direction	
	aged + 2% prestrain	aged + 2% prestrain + BH	BH2
Test 1	523	615	92
Test 2	523	617	94
Test 3	522	616	94
Average			93
Std. Dev.			1.2

All the BH2 values that were obtained exceed 40MPa, which is the level recited in claim 1.

The Declaration explains why one of skill in the art would not have expected such high bake hardening values with the claimed high levels of aluminum. Briefly, the skilled worker would have expected a structure to the steel that rendered it less strong rather than stronger.

Thus, the claimed invention is not rendered obvious by the cited reference.

Accordingly, based on the foregoing differences, Applicants submit that the cited reference neither teaches nor suggests the presently claimed steel compositions, and withdrawal of this rejection is earnestly solicited.

Summary

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

U.S. Patent Application Serial No. 10/539,758
Reply to Office Action dated February 1, 2010

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate.

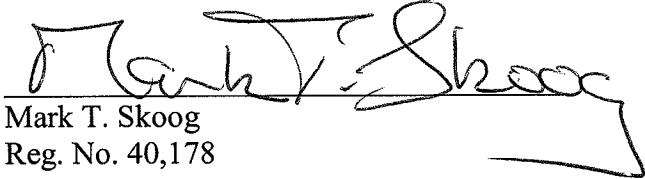
Please charge any additional fees or credit any overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

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